

claims.

WHAT IS CLAIMED IS:

1. A spray type drum washing machine comprising:

a cabinet;

5 a tub mounted in the cabinet, and adapted to contain wash water therein;

a circulation line connected between a portion of the tub and another portion of the tub to circulate wash water through the tub;

10 a pump installed at the circulation line, and adapted to forcibly feed wash water through the circulation line for the circulation of the wash water through the tub; and

atomizing means provided at the circulation line, and adapted to atomize the wash water fed through the circulation
15 line, whereby the wash water to circulate through the tub is supplied in an atomized state into the tub.

2. The spray type drum washing machine according to claim 1, wherein the atomizing means comprises:

20 a case arranged at the circulation line, and adapted to allow wash water to pass therethrough;

diffusion means provided at an inlet portion of the case, and adapted to diffuse wash water to be introduced into the case, thereby atomizing the wash water; and

25 a blowing fan adapted to forcibly feed, into the tub, the

atomized wash water emerging from the diffusion means.

3. The spray type drum washing machine according to claim 2, wherein the diffusion means comprises:

5 at least one centrifugal plate adapted to be rotated about an axis passing through a center thereof by a driving force; and

 a diffusion net arranged around the centrifugal plate, and adapted to diffuse wash water radially projected from the centrifugal plate in an atomized state.

4. The spray type drum washing machine according to claim 3, wherein the at least one centrifugal plate comprises a plurality of centrifugal plates axially spaced apart from one another.

5. The spray type drum washing machine according to claim 3, wherein the centrifugal plate and the blowing fan are rotated by a dual-shaft motor adapted to generate the driving force.

6. The spray type drum washing machine according to claim 1, wherein the atomizing means comprises:

 a case arranged at the circulation line, and adapted to allow wash water to pass therethrough;

at least one centrifugal plate arranged in the case, and adapted to centrifugally radially project the wash water introduced into the case;

5 a diffusion net arranged around the centrifugal plate, and adapted to atomize the wash water centrifugally radially projected from the centrifugal plate when the wash water passes therethrough;

a blowing fan adapted to forcibly feed, into the tub, the atomized wash water emerging from the diffusion net; and

10 drive means adapted to rotate the centrifugal plate and the blowing fan.

7. The spray type drum washing machine according to claim 1, wherein the circulation line is provided, at an outlet end thereof, with a diffusion nozzle.

8. The spray type drum washing machine according to claim 1, further comprising:

20 a steam generating device installed at the circulation line, and adapted to heat the atomized wash water emerging from the atomizing means, thereby changing the atomized wash water into steam, and to supply the steam into the tub.

9. The spray type drum washing machine according to claim 8, wherein the steam generating device comprises:

a container arranged at the circulation line, and adapted to allow the atomized wash water emerging from the atomizing means to pass therethrough; and

5 a heater adapted to heat the atomized wash water passing through the container.

10. The spray type drum washing machine according to claim 9, wherein the steam generating device further comprises:

10 temperature sensing means adapted to measure an internal temperature of the container.

11. A spray type drum washing machine comprising:

a cabinet;

15 a tub mounted in the cabinet, and adapted to contain wash water therein;

a circulation line connected between a portion of the tub and another portion of the tub to circulate wash water through the tub;

20 a pump installed at the circulation line, and adapted to forcibly feed wash water through the circulation line for the circulation of the wash water through the tub;

atomizing means provided at the circulation line, and adapted to atomize the wash water to circulate through the tub; and

25 steam generating means installed at the circulation line,

and adapted to heat the atomized wash water emerging from the atomizing means, thereby changing the atomized wash water into steam, and to supply the steam into the tub.

5 12. The spray type drum washing machine according to claim 11, wherein the atomizing means comprises:

a case arranged at the circulation line, and adapted to allow wash water to pass therethrough;

10 diffusion means provided at an inlet portion of the case, and adapted to diffuse wash water to be introduced into the case, thereby atomizing the wash water; and

a blowing fan adapted to forcibly feed, into the tub, the atomized wash water emerging from the diffusion means.

15 13. The spray type drum washing machine according to claim 12, wherein the diffusion means comprises:

at least one centrifugal plate adapted to be rotated about an axis passing through a center thereof by a driving force; and

20 a diffusion net arranged around the centrifugal plate, and adapted to diffuse wash water radially projected from the centrifugal plate in an atomized state.

25 14. The spray type drum washing machine according to claim 13, wherein the at least one centrifugal plate comprises

a plurality of centrifugal plates axially spaced apart from one another.

15. The spray type drum washing machine according to
5 claim 13, wherein the centrifugal plate and the blowing fan are rotated by a dual-shaft motor adapted to generate the driving force.

16. The spray type drum washing machine according to
10 claim 11, wherein the circulation line is provided, at an outlet end thereof, with a diffusion nozzle.

17. A spray type drum washing machine comprising:

a cabinet;

15 a tub mounted in the cabinet while carrying a drum therein, and adapted to contain wash water therein;

a circulation line connected between bottom and top portions of the tub to circulate wash water through the tub;

20 a pump installed at the circulation line, and adapted to forcibly feed wash water through the circulation line for the circulation of the wash water through the tub;

atomizing means provided at the circulation line downstream from of the pump, and adapted to atomize the wash water to circulate through the tub; and

25 a diffusion nozzle provided at an outlet end of the

circulation line, and adapted to spray, into the tub, the wash water atomized while passing through the atomizing means.

18. The spray type drum washing machine according to claim 17, wherein the atomizing means comprises:

a case arranged at the circulation line, and adapted to allow wash water to pass therethrough;

at least one centrifugal plate arranged in the case, and adapted to centrifugally radially project the wash water introduced into the case;

a diffusion net arranged around the centrifugal plate, and adapted to atomize the wash water centrifugally radially projected from the centrifugal plate when the wash water passes therethrough;

a blowing fan adapted to forcibly feed, into the tub, the atomized wash water emerging from the diffusion net; and

drive means adapted to rotate the centrifugal plate and the blowing fan.

19. The spray type drum washing machine according to claim 18, further comprising:

steam generating means installed at the circulation line, and adapted to heat the atomized wash water emerging from the atomizing means, thereby changing the atomized wash water into steam, and to supply the steam into the tub.

20. The spray type drum washing machine according to claim 19, wherein the steam generating device comprises:

5 a container arranged at the circulation line, and adapted to allow the atomized wash water emerging from the atomizing means to pass therethrough;

a heater adapted to heat the atomized wash water passing through the container;

10 temperature sensing means adapted to measure an internal temperature of the container; and

control means adapted to control the heater in accordance with a signal outputted from the temperature sensing means.